

REMARKS

This amendment is being filed along with a Request for Continued Examination (RCE) in response to the final Office Action having a mailing date of June 25, 2008. Various claims are amended as shown. New dependent claim 59 is added herewith for examination on its merits along with the existing claims. No new matter has been added. With this amendment, claims 1-59 are pending in the application.

I. Rejections under 35 U.S.C. § 101

The final Office Action rejected claims 1-48 under 35 U.S.C. § 101 as allegedly being directed towards non-statutory subject matter. Page 4 (section 4) of the final Office Action alleged the following (emphasis ours):

“[C]laims 1-58 merely disclose steps/components for converting digital data to be processed without disclosing a practical/physical application as a useful and tangible result. At most, the claims direct to a data conversion in a computer.”

This allegation by the final Office Action that claims 1-58 are directed towards non-statutory subject matter is traversed herein.

First, it is asserted herein that the Examiner has not met the *prima facie* burden that is required in order to reject the claims as being unpatentable under 35 U.S.C. § 101. MPEP § 2106 (Patent Subject Matter Eligibility) sets forth the following (emphasis ours):

“II. DETERMINE WHETHER THE CLAIMED INVENTION
COMPLIES WITH 35 U.S.C. 101

...

B. Determine Whether the Claimed Invention Falls Within An
Enumerated Statutory Category

To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. 101, USPTO personnel must first identify whether the claim falls within at least one of the four enumerated categories of patentable subject matter recited in section 101 (i.e., process, machine, manufacture, or composition of matter).

...

The burden is on the USPTO to set forth a *prima facie* case of unpatentability.

In the present situation, the Examiner has not met the *prima facie* burden to show unpatentability, in that the present claims do indeed fall within the four specifically enumerated categories of patentable subject matter. For example, independent claim 1 as previously presented recited, *inter alia*, a “device”, a “conversion circuit”, and “circuits ... to carry out a digital processing.” Such device/circuit(s) clearly fall within at least the patentable statutory category of a “machine,” and therefore the Examiner has not met his *prima facie* burden that requires “USPTO personnel must first identify whether the claim falls within at least one of the four enumerated categories of patentable subject.”

To provide further compliance with 35 U.S.C. § 101, claim 1 is amended herein to clarify that the claimed “device” is an --electronic device--, and further amended to recite that the conversion circuit is --is integrated in a semiconductor circuit--. Support for these amendments can be found, for example, on page 2, line 27; page 10, lines 22-23; page 17, lines 16-17; and elsewhere in the present application. These specific recitations of the electronic device and semiconductor circuit clearly embody the elements of at least a “machine” or other patentable statutory category.

The other independent claims are amended in a similar manner as claim 1, using varying language, and are thus further allowable under 35 U.S.C. § 101. In view of these amendments to claim 1 and the other independent claims, it is kindly requested that the rejections under 35 U.S.C. § 101 be withdrawn.

It is noted herein that in explaining the rejections under 35 U.S.C. § 101, page 2 (section 4) of the final Office Action asserted that “At most, the claims direct to a data conversion in a computer,” in an effort (it appears) by the Examiner to characterize the claims as falling into the non-patentable “judicial exceptions” of “laws of nature, natural phenomena and abstract ideas.” This assertion by the final Office Action is traversed.

First, the present claims do not fall within these non-patentable judicial exceptions. For example and as previously explained above, claim 1 and the other claims recite, *inter alia* and using varying language, an electronic circuit and a conversion circuit integrated in a semiconductor circuit. These claim elements are clearly not “laws of nature, natural phenomena and abstract ideas.”

Second, even assuming *arguendo* and *hypothetically* that the data transformation (data conversion) recited in claims may involve “laws of nature, natural phenomena and abstract ideas” as the Examiner seems to be alleging, there is nevertheless a practical application that, for example, produces a “useful, concrete and tangible result.” MPEP § 2106 (Patent Subject Matter Eligibility) sets forth the following (emphasis ours):

“II. DETERMINE WHETHER THE CLAIMED INVENTION
COMPLIES WITH 35 U.S.C. 101

...

C. Determine Whether the Claimed Invention Falls Within 35
U.S.C. 101 Judicial Exceptions - Laws of Nature, Natural Phenomena and
Abstract Ideas

...

While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or

law of nature, and not for the abstract idea, natural phenomenon, or law of nature itself.

1. Determine Whether the Claimed Invention Covers Either a 35 U.S.C. 101 Judicial Exception or a Practical Application of a 35 U.S.C. 101 Judicial Exception

USPTO personnel must ascertain the scope of the claim to determine whether it covers either a 35 U.S.C. 101 judicial exception or a practical application of a 35 U.S.C. 101 judicial exception. The conclusion that a particular claim includes a 35 U.S.C. 101 judicial exception does not end the inquiry because the practical application of a judicial exception may qualify for patent protection. 'It is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.' *Diehr*, 450 U.S. at 187, 209 USPQ at 8 (emphasis in original); accord *Flook*, 437 U.S. at 590, 198 USPQ at 197; *Benson*, 409 U.S. at 67, 175 USPQ at 675. Thus, '[w]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.' *Diehr*, 450 U.S. at 188, 209 USPQ at 8-9 (quoting *Mackay*, 306 U.S. at 94); see also *Corning v. Burden*, 56 U.S. (15 How.) 252, 268, 14 L.Ed. 683 (1854)('It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted...').

2. Determine Whether the Claimed Invention is a Practical Application of an Abstract Idea, Law of Nature, or Natural Phenomenon (35 U.S.C. 101 Judicial Exceptions)

...A claimed invention is directed to a practical application of a 35 U.S.C. 101 judicial exception when it:

(A) 'transforms' an article or physical object to a different state or thing; or

(B) otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

(1) Practical Application by Physical Transformation

USPTO personnel first shall review the claim and determine if it provides a transformation or reduction of an article to a different state or thing. If USPTO personnel find such a transformation or reduction, USPTO personnel shall end the inquiry and find that the claim meets the statutory requirement of 35 U.S.C. 101. If USPTO personnel do not find such a transformation or reduction, they must determine whether the claimed invention produces a useful, concrete, and tangible result.

(2) Practical Application That Produces a Useful, Concrete, and Tangible Result

...If USPTO personnel determine that the claim does not entail the transformation of an article, then USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result...

In determining whether a claim provides a practical application of a 35 U.S.C. 101 judicial exception that produces a useful, tangible, and concrete result, USPTO personnel should consider and weigh the following factors:

a) 'USEFUL RESULT'

For an invention to be 'useful' it must satisfy the utility requirement of section 101. The USPTO's official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible...

b) 'TANGIBLE RESULT'

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a

35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had ‘no substantial practical application.’)...

c) ‘CONCRETE RESULT’

Another consideration is whether the invention produces a “concrete” result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. *In re Swartz*, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000) (where asserted result produced by the claimed invention is “irreproducible” claim should be rejected under section 101)...

Claim 1 as previously presented recited, *inter alia*, “a conversion circuit ... adapted to reduce processing time of a high volume of said data by a computer, by generation of a transform...” Claim 1 as amended herein further recites, *inter alia*, “said conversion circuit is integrated in a semiconductor circuit so as to enable said transform to be performed within said semiconductor circuit to increase data processing speed.” It is respectfully submitted that this language in claim 1 is directed towards a “practical application” that provides the requisite “useful, concrete, and tangible result.”

For example, a conversion circuit to reduce processing time of data is indeed a “useful result.” Reduction in processing time of a computer (*e.g.*, a faster computer) is useful, for example, since more data may be processed in a faster manner by a computer, thereby providing the computer with better performance, which is desirable or important to a user of the computer. Moreover, a conversion circuit “integrated in a semiconductor product” to enable the transformation of the data to be performed “within the semiconductor circuit” is also useful, since the benefits of weight/volume minimization provided by semiconductor products can be realized (for example, small and lightweight integrated semiconductor products present in mobile telephones)—such semiconductor implementations provide a benefit/advantage over large,

bulky, and non-portable computers that have been traditionally used to process large volumes of data (*see, e.g.*, page 2, lines 12-15 of the present application).

Moreover, the reduction of processing time and “increase data processing speed” are indeed real-world “tangible results,” for instance since the reduction in processing time and increased data processing speed in a computer can be physically (tangibly) measured and is a practical application. As an example of a practical application, in the field of sorting data by a computer, there is a need in a great number of situations for sorting different data values stored in an information handling system, and a key technical problem resides in the capability of achieving the sorting process in a reduced time so as to identify a maximum/minimum/target value. One of the presently disclosed embodiments thus provides a new type of electronic integrated circuit achieving processing of data at ultra-high speed. The disclosed embodiment(s) for example provide such an electronic circuit and method for operating the electronic circuit for quickly and efficiently extracting a maximum or a minimum between values that are stored in a computer, for the purpose of identifying one particular value to be subsequently used in further process.

Additionally, page 17, lines 4-7 of the present application describe that the electronic device can be produced on silicon, which provides a very fast conversion and which optimizes the use of the silicon surface. Such increased/fast speed and optimization of the surface of the silicon are clearly “tangible results” and/or “useful results.”

Further, the claimed “conversion circuit” integrated in a semiconductor circuit to “to reduce processing time of a high volume of said data by a computer” and “increase data processing speed” also provides claim 1 with a “concrete result.” As quoted above, MPEP § 2106 states that “the process must have a result that can be substantially repeatable or the process must substantially produce the same result again.” In the present situation, the generation of the transform by the conversion circuit and other elements of claim 1 are substantially repeatable or substantially produce the same result in an integrated semiconductor circuit: a reduction of the processing time of a high volume of the data and increased data processing speed, which can clearly be repeated to produce the same result again.

Furthermore as explained above, a “practical application” can also be provided when a claim “transforms an article or physical object to a different state or thing.” In present claim 1, there is indeed a transformation into T[x] of the data. Further, even the final Office Action has admitted that the claims involve a data “conversion.” Accordingly, it is respectfully submitted that claim 1 and the other independent claims are in compliant with the requirements for a “practical application.”

Accordingly, it is again respectfully submitted that claim 1 and the other claims meet statutory subject matter requirements, and it is kindly requested that the rejections under 35 U.S.C. § 101 be withdrawn.

It is still further noted herein that, as will be further discussed below, the final Office Action relies upon de Tremiolles (U.S. Patent Application Publication No. 2001/0013048) in order to reject the claims under 35 U.S.C. 103(a). Upon further review of the file history of de Tremiolles from the U.S. Patent Office PAIR system, the attorney of record (Dennis M. de Guzman) has discovered that this de Tremiolles patent publication had issued into U.S. Patent No. 6,748,405 on June 8, 2004. The issued claims in the de Tremiolles patent recite various steps pertaining to the encoding and other processing of data, and the file history of the de Tremiolles patent further reveals that no substantive Office Actions were issued that rejected the claims of the de Tremiolles patent under 35 U.S.C. § 101 as being directed towards non-statutory subject matter—the de Tremiolles patent was found to be indeed directed towards statutory subject matter. Accordingly, the reasoning(s) is not understood and/or reasoning(s) is not otherwise provided by the Examiner as to why the claims of the present application can stand rejected as being directed towards non-statutory subject matter and as being obvious in view of de Tremiolles, while the U.S. Patent Office has acknowledged the compliance under 35 U.S.C. § 101 by granting the de Tremiolles patent and by continuing to grant other patents directed towards “data conversion.”

II. Discussion of the claims and cited reference

The final Office Action rejected claims 1-58 under 35 U.S.C. 103(a) as being unpatentable over de Tremiolles (U.S. Patent Application Publication No. 2001/0013048).

These rejections on the basis of de Tremiolles included the use of Official Notice to reject certain claim limitations.

For the reasons set forth below, the rejections of the claims are respectfully traversed, and it is kindly requested that the Examiner reconsider and withdraw the rejections.

A. Independent claim 1

Independent claim 1 as amended herein recites, *inter alia*, “said conversion circuit is adapted to produce higher processing timesaving as a number of said digital data to be processed gets larger.” Support for this amendment can be found, for example, on page 10, lines 20-21 and elsewhere in the present application. It is respectfully submitted that de Tremiolles does not meet this limitation.

de Tremiolles teaches the following in his paragraphs [0001], [0008], [0026], and [0050], all of which are reproduced below (emphasis ours):

“[0001] The present invention relates to techniques to search a number having a determined value in a set of numbers and more particularly to a method and circuits for searching the number having the minimum/maximum value in this set of numbers. The described solution allows a very fast search, improving thereby the response time and also providing a constant time response whatever the quantity of numbers among said set in which the minimum/maximum search is conducted ...

[0008] It is another object of the present invention to provide a method and circuits for performing the search of the minimum/maximum value among a set of numbers wherein the response time is constant whatever the quantity of numbers among which the search is performed ...

[0026] The method of the present invention thus significantly improves the response time of the minimum/maximum value search by parallelizing most of the computations if not all, so that it is no longer dependent of the quantity q of bits to code the numbers to be searched so

that the number of steps of the minimum/maximum evaluation process can be significantly inferior ...

[0050] ... Therefore, as mentioned above, this response time does not depend upon anymore neither of the quantity p of Numbers in which the minimum is searched (four in the present case) nor of parameter q (six in the present case), but of parameter K which defines the splitting of the Numbers (two in the example shown in FIG. 5(a)).”

Thus as is clearly evident from the above-quoted passages of de Tremiolles, he teaches that he keeps his response time “constant” regardless of the “quantity of numbers” that he has to process. Stated in another way, de Tremiolles’ response time “does not depend” on the quantity of numbers.

Accordingly, since de Tremiolles’ response time is kept constant and does not depend on the quantity of numbers, it is respectfully submitted that de Tremiolles does not meet the limitations of claim 1 that require “said conversion circuit is adapted to produce higher processing timesaving as a number of said digital data to be processed gets larger.”

Hence, claim 1 is allowable over de Tremiolles.

B. Other independent claims

The other independent claims are amended in a manner generally similar to claim 1 so as to recite, *inter alia* and using varying language, that there is higher processing timesaving as the number of data increases. For reasons similar to those set forth above, it is respectfully submitted that these other independent claims are also allowable.

C. Official Notice

In various pages of the final Office Action, the Examiner took Official Notice in rejecting the limitations of claim 1 and the other independent claims, and the limitations in dependent claim 13, which respectively recite that the original code of the data to be processed

includes “a signed type” and that the original code further includes “an unsigned type, Gray, Johnson, and includes a mantissa and an exponent.”

More particularly, the Examiner acknowledged on various pages of the final Office Action that de Tremiolles fails to disclose the limitations/features claimed in independent claim 1 and the other independent claims, and in dependent claim 13, pertaining to the signed/unsigned/etc. data to be processed, but states in a conclusory manner using Official Notice, without any factual support, that such features are “well-known in the art of the technology and widely used in many practical applications.” These assertions of obviousness using Official Notice are respectfully traversed herein, and it is respectfully requested that documentary evidence to support these assertions be produced. The failure to cite at least one reference, having the features recited in the claims where Official Notice was used, is in itself evidence that no reference was available. Thus, it is respectfully submitted that the features recited in such claims are not well-known, at the time of the invention by the applicants, to one of ordinary skill in the art. Accordingly, for this reason alone, the rejection of such claims using Official Notice is improper, and should be withdrawn.

For the reasons set forth below, each and every one of the Official Notices taken in the final Office Action are also further traversed. Since the Official Notice allegations used to reject the above claims are being traversed herein and since sound reasoning is being provided below in support of the traversals, it is kindly requested that the Examiner provide a citation to specific references, an affidavit, or other documentary evidence as required by MPEP § 2144.03 in order to support the Official Notice or withdraw the rejections on the basis of Official Notice.

As stated in MPEP § 2144.03(A), Official Notice unsupported by documentary evidence should only be taken where the facts asserted to be well-known “are capable of instant and unquestionable demonstration as being well-known” (emphasis ours). MPEP § 2144.03(B) further states that “there must be some form of evidence in the record to support an assertion of common knowledge” (emphasis ours). MPEP § 2144.03(B) further explains that “general conclusions concerning what is ‘basic knowledge’ or ‘common sense’ to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection ... If such a notice is taken, the basis for

such reasoning must be set forth explicitly. The Examiner must provide specific factual findings predicated on the sound technical and scientific reasoning to support his or her conclusion of common knowledge.” It is respectfully submitted that these specific requirements for taking Official Notice have not been met, and therefore, the Official Notices are erroneous and should be withdrawn.

For example, the Examiner has made mere bold assertions that it is “well-known” and “widely used” to use signed/unsigned/Gray/Johnson/etc. types for data to be processed, but has not provided any “evidence in the record” to support such assertions and/or has not demonstrated that the alleged facts are “capable of instant and unquestionable demonstration” as being well known. The Examiner only makes unsupported assertions.

de Tremiolles, for example, makes no specific mention or discussion as to the specific type and/or format of the data that he processes. Paragraph [0037] of de Tremiolles teaches that his numbers are “coded in a binary format ... on q bits,” but he provides no further details as to any signed/unsigned/Gray/Johnson/etc. format. Accordingly, there is no further specific factual findings and some concrete evidence in the record as required by MPEP § 2144.03(B) to support the rejection of the claims on the basis of Official Notice.

The Examiner also has not provided “specific factual findings predicated on the sound technical and scientific reasoning to support his or her conclusion of common knowledge.” Indeed, no such “specific factual findings” of any type has been provided by the Examiner as required by MPEP § 2144.03(A), let alone any specific factual findings that are “predicated on the sound technical and scientific reasoning.” The Examiner has merely made bold assertions of common knowledge, without any factual support/findings predicated on technical/scientific reasoning.

With regards to MPEP § 2144.03(A), it has not been shown by the Examiner that the facts asserted to be well-known are capable of “instant and unquestionable demonstration” as being well-known. de Tremiolles does not teach the specific format/coding of his data in the manner recited in the present claims. If there are several possible ways in which the data to be processed is coded (none of which are specifically taught in de Tremiolles), it inherently and/or explicitly follows that coding/formatting data as signed/unsigned/Gray/Johnson/etc. can in no

way be “instant and unquestionable” in de Tremiolles, since some degree of experimentation is needed to determine which data format/coding will work best in de Tremiolles’ technique/system.

Accordingly, it is respectfully submitted that the Official Notice with regards to the rejections of the claims be withdrawn since the requirements of MPEP §§ 2144.03(A)-(B) have not been met.

II. Supplemental information disclosure statement (IDS) and amendment to the specification

A supplemental IDS is being filed herewith to submit an additional reference for consideration. Because this supplemental IDS is being filed along with the present RCE, an IDS certification and/or an IDS fee are not required, and are therefore not being submitted. It is kindly requested that an Examiner-initiated copy of this supplemental IDS be provided along with the next communication, so as to confirm that the reference listed therein has been entered into the record and considered.

The specification is amended as shown to make a typographical correction.

IV. Conclusion

If the attorney of record (Dennis M. de Guzman) has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact Mr. de Guzman at (206) 622-4900.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are believed to be allowable.
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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